

What is claimed is:

- 1 1. A storage system apparatus, comprising:
2 at least one of a plurality of disk drives;
3 a memory, operable to contain path selection information;
4 a plurality of ports, providing switch-able connection to a plurality of
5 networks; and
6 a processor;
7 wherein said plurality of networks each has at least one of a plurality of
8 user provided policies associated therewith, and wherein said processor, based upon
9 monitoring of at least one of a plurality of conditions in said plurality of networks, selects
10 at least one of said plurality of ports connecting said plurality of networks, based upon a
11 comparison of said at least one of a plurality of conditions in said plurality of networks to
12 a plurality of user provided policies.
- 1 2. The storage system apparatus of claim 1, wherein said at least one
2 of a plurality of conditions comprises at least one of a throughput, a busy rate, an error
3 rate, and a presence of an error.
- 1 3. The storage system apparatus of claim 1, further comprising a
2 plurality of status indications, said plurality of networks each having at least one of said
3 plurality of status indications associated therewith; and wherein said processor determines
4 based upon said status indication whether to select a port from said at least one of a
5 plurality of ports connecting said plurality of networks.
- 1 4. The storage system apparatus of claim 3, further comprising a
2 network monitor, said network monitor operable to detect a condition within at least one
3 of said plurality of networks, and thereupon set said value in said status indication.
- 1 5. The storage system apparatus of claim 3, wherein said status
2 indication comprises at least one of available, temporarily unavailable, and unavailable.
- 1 6. The storage system apparatus of claim 1, wherein said policy
2 comprises at least one of a threshold, a maximum, a minimum, an average, a mean, a
3 limit, a constraint, a priority, and a target.

1 7. The storage system apparatus of claim 1, wherein said plurality of
2 networks are grouped into a plurality of path groups, wherein said policies are associated
3 with networks in a particular path group.

1 8. The storage system apparatus of claim 7, wherein said at least one
2 of a plurality of disk drives comprises at least one of a plurality of volumes.

1 9. The storage system apparatus of claim 8, wherein each of said at
2 least one of a plurality of volumes is permitted to access networks of at least one of said
3 plurality of path groups.

1 10. A method for minimizing cost of network access by a storage
2 apparatus, said method comprising:
3 specifying a first network to be used for transferring data;
4 specifying a constraint for said first network;
5 specifying a second network to be used for transferring data;
6 transferring data using said first network when conditions in said first
7 network are in accordance with said constraint, otherwise transferring data using said
8 second network.

1 11. The method of claim 10, further comprising:
2 transferring a portion of said data using said first network even when
3 conditions in said first network are not in accordance with said constraint as a test;
4 monitoring conditions in said first network during said test; and
5 returning to transferring data using said first network when said test
6 reveals that conditions in said first network are again in accordance with said constraint.

1 12. The method of claim 10, wherein said first network is relatively
2 less expensive to use than said second network.

1 13. The method of claim 10, wherein specifying said constraint for said
2 first network comprises specifying at least one of a throughput, a busy rate, an error rate,
3 and a presence of an error.

1 14. The method of claim 10, wherein said first network is a public
2 network and said second network is a private network.

1 15. The method of claim 10, further comprising:
2 making said first network a higher priority network than said second
3 network.

1 16. The method of claim 10, further comprising:
2 detecting an abnormal condition in said first network and thereupon
3 transferring data using said second network.

1 17. A method for selecting a network, said method comprising:
2 monitoring at least one of a plurality of conditions in a plurality of
3 networks;
4 comparing said at least one of a plurality of conditions in said plurality of
5 networks to at least one of a plurality of user provided policies; and
6 selecting at least one of a plurality of ports connecting to said plurality of
7 networks;
8 wherein said plurality of networks each has at least one of said plurality of
9 user provided policies associated therewith.

1 18. The method of claim 17, wherein selecting at least one of a
2 plurality of ports connecting to said plurality of networks comprises:
3 determining based upon a status indication whether to select a port from
4 said at least one of a plurality of ports connecting said plurality of networks.

1 19. The method of claim 17, further comprising:
2 associating said plurality of networks with a plurality of path groups;
3 wherein said at least one of a plurality of policies is associated with at least
4 one of a plurality of path groups.

1 20. The method of claim 17, wherein monitoring at least one of a
2 plurality of conditions in a plurality of networks comprises:
3 using a network monitor to detect a condition within at least one of said
4 plurality of networks, and thereupon set a value in a status indication.

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